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		Budapest, Hi "Kryobiological Range; I.	he Bukk- ar	in the Hung	arian Centi ntains."	PP 434-438.	
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PETRUSHOW, A., doktor ekonem.nank; AFAMAS'YEV, L.A., kand.ekonom.nank;

IMMILEVEDH, M.V., kand.ekonom.nank; EUGIAZAROYA, W.A., kand.ekonom.

nauk; KOYAZEV, Y.V., KOE., M.A.; KUZERTSOV, B.P., kand.ekonom.

nauk; KOYAZEV, Y.S., MARTIMOV, V.A., kand.ekonom.nank; KHE'SEH.

KOYA, M.A.; HIKITEMEO, B.A.; CHURIYEV, Yu.G.; PROKEGOVA, G.W.;

RYDVAHOV, W.F.; SEGAL:, M.M., kand.istor.nauk; UKHOVA, A.M.; PARIZOV,
A.A., kand.ekonom.nauk; SHIFRIM, E.L., doktor ekonom.nauk; SHIJKHTER,
red.; MOKKVIMA, R., tekhn.red.

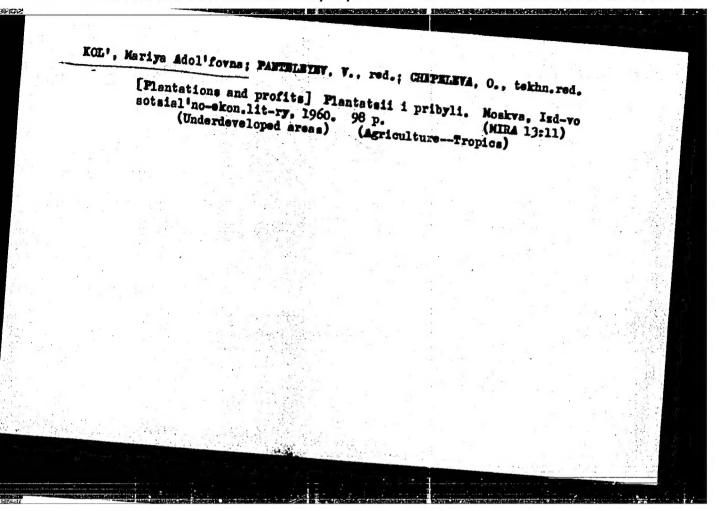
[Agriculture of capitalist countries; a statistical manual] Sel'skoe
khosinistvo kapitalisticheskikh stran; statisticheskii spravochnik.

Otvet.red.A.Petrushov. Moskva, Isd-vo sotsial'no-ekon.lit-ry, 1959.

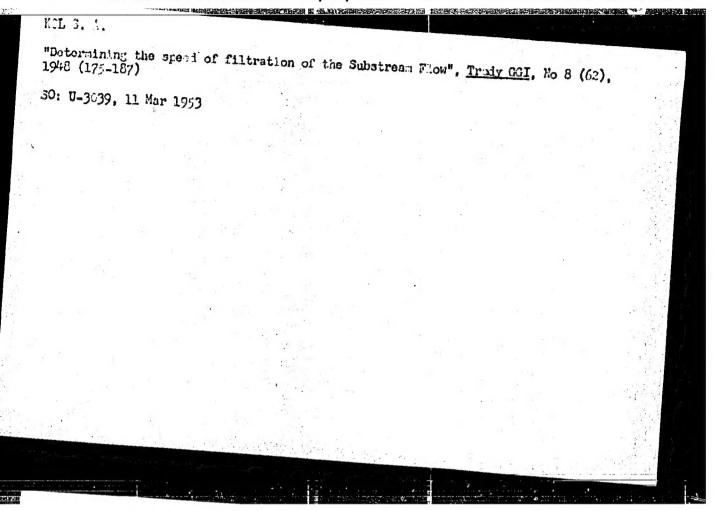
(MIRA 13:6)

1. Akademiya nauk SSSR. Institut mirovoy ekonomiki i meshdunarodnykh

(Agriculture—Statistics)



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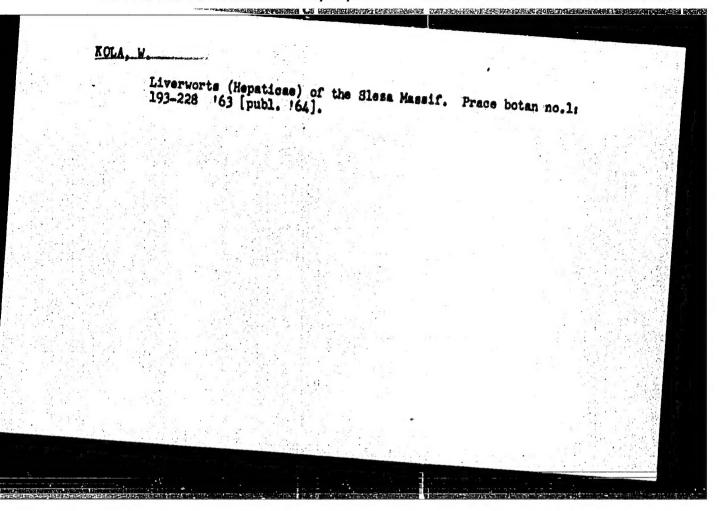
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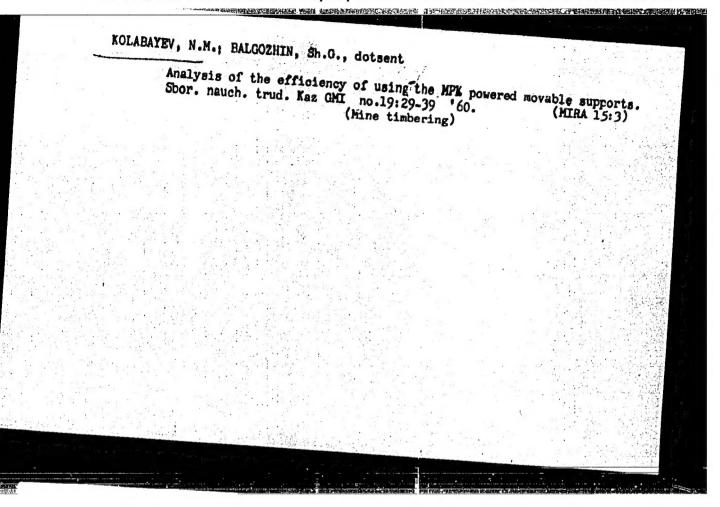
- 1. KOL!, V. H.: VOINOV, Yu. L.
- 2. USSR (600)
- 4. Cabbage
- 7. Growing cabbage seed on the state farm. Sad i og. no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

- 1. ROL', V. M.; VOYNOV, YU. L.; DOMIN, S. I.
- 2. USSR (600)
- 4. Mangel-Wursel
- 7. For high yields of fodder best seed, Dost. sel'khoz., no. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.





KOLABINSKI, B., WOJDANONICZ, S.

The results of research on the prototype of the first vibrating roller of domestic production. p. 65.

DROGOWNICTWO. (Wydawnictwa Komunikacyjne) Warazawa, Poland. Vol. 14, no. 3,

Monthly List of East European Accessions (EFAI) LC, Vol. 8, no. 7, July 1759

Uncl.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723710019-1"

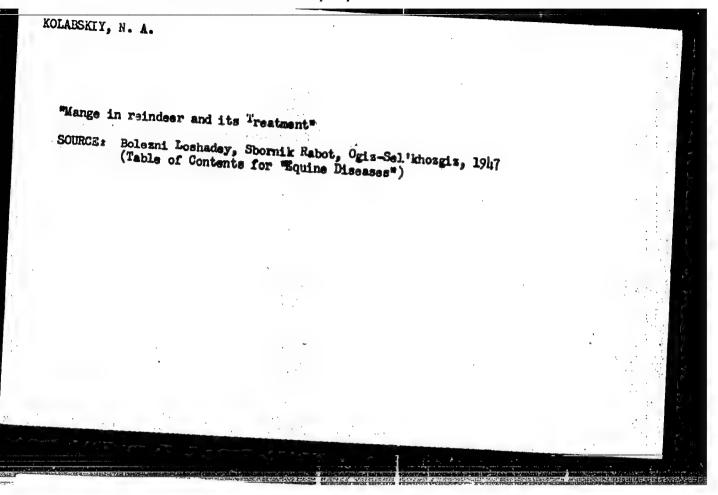
KOLABOVA, K. M. and NEMNONOV, S. A. Kotabova, K.M.

"Interrelationship of Some X-ray Spectral and Magnetic Characteristics of Iron-Base Alloys"

Materials of teh 2nd All-Union Conference on X-ray Spectroscopy; Moscow, January 31 to February 4, 1957 (Materialy II Vsesoyuznogo soveshchaniya po rentgenovskoy spektroskopii; Moskva, 31 yanvarya - fevralya 1957 g.)

Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1957, Vol 21, Nr 10, pp 1341-

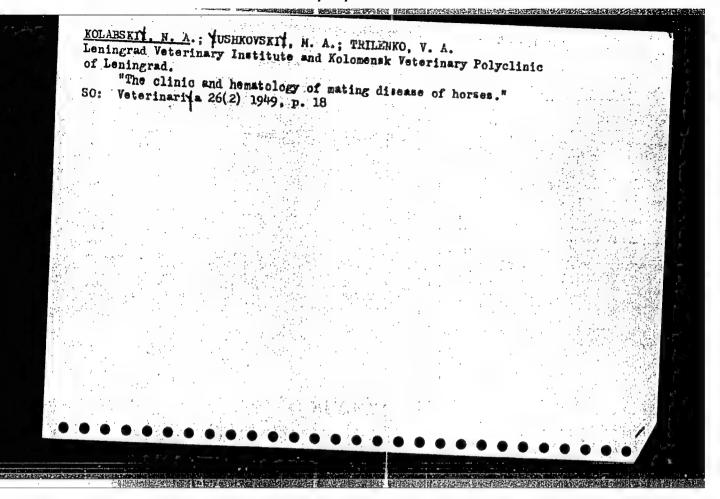
UFAN. 555R



KOLABSKIY, N. A.

23533 AMEBOV SVINEY. SBORNIK NAUCH. TRUDOV (LENINGR. VET. IN-T), VYP. 10, 1919,
C. 81-86

So: LETOPIS' NO. 31, 1919



Wolfieldicine - Protosoology Jun 50
Societies; Medical

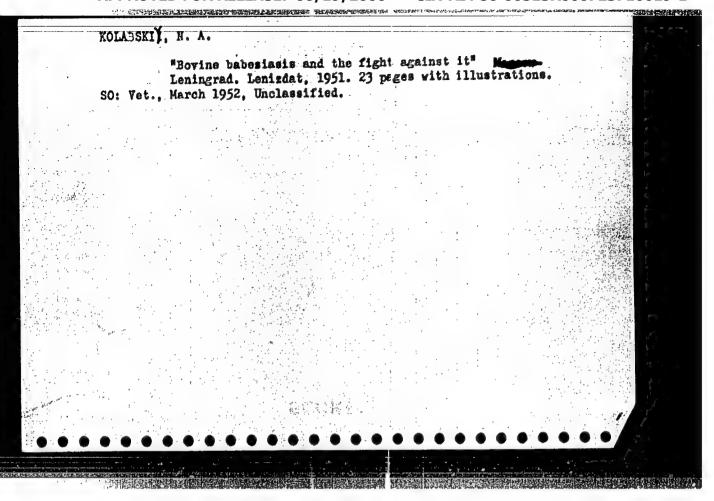
"Scientific Conference on Problems of Protosoology,"
Docent M. A. Kolabskiy, Chair of Parasitol, Leningrad Vet Inst, 1½ pp. (coference hold 28 Feb-4Mar)

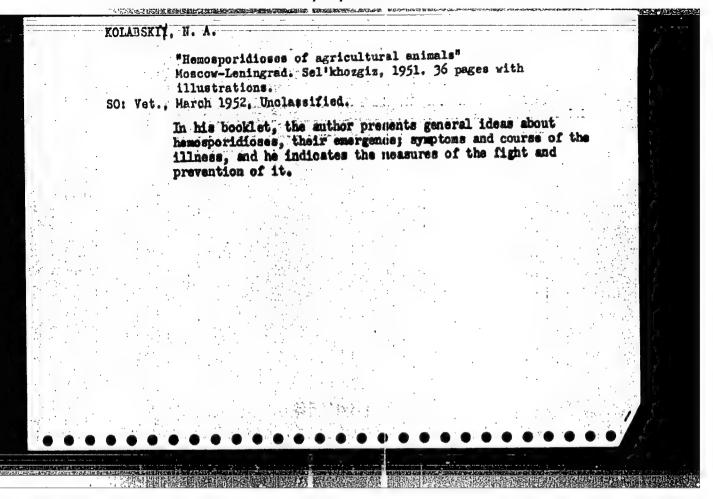
"Veterinariya" No 6 Vel 27, p62, June 1950

Lists titles and authors of 35 reports read at subject conference held 28 Feb - 4 Mar 50 at Leningrad

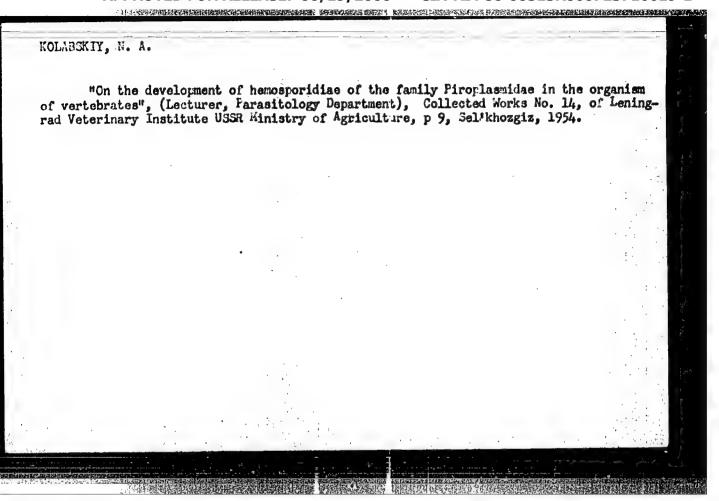
Vet Inst in homor of 80th anniversary of Vesiliy
Larionovich Yakimov, Hon Worker of Sci REFSR.
Lists six discrepancies in scientific research work
in protozoology.

161761





"Experiments in immunization of cattle in bahesiasis", (Lecturer, Farasitology Department). Collected Works No. 14, of Leningrad Veterinary Institute USSR Ministry of Agriculture, P 5; Sel'khozgiz, 1954.



YETHUOD **USSR** CATAGOR' ABB. JOHR: 1 RZB101., No. 3 1957, No. 10284 Kolabskiy, N. A., Gaydakov, A. Kh. Leningrad Veterinary Institute AUTHO: ? INST. TITLE Experiments on the Attenuation of Virulent Properties of the Pathogens of Equine Nuttalliosis CRIG. PUB. : Sb. rabot Leningr. vet. in-t, 1957, No 16, 80-83 A A BETRACT When colts were infected with the blood of horses containing Nuttallia equi:27-38 days after its first passage it was impossible to produce the disease in the colts which had recovered from the injection of nuttallias which had been passaged 3 times. The same results were obtained in colts after the injection of blood containing these parasites which had been passaged 4, 5, and 7 times. The pathogen of equine huttalliosis when passaged through the bodies of susceptible CARD: 1/2

KOLABSKIY, H.A., dote,; KHVAN BMI KHYA; KIK DON KHI

Control of thiloriasis in the Korean People's Democratic Republic.
Veterineria 36 no.8:28-31 Ag '59. (MIRA 12:11)

1. Leningradekty veterinermy institut (for Kolebskiy). 2. Nauchnoisaledovetel's dry veterinermy institut Koreyskoy Maredno-demokraticheskoy Respublici (for all except Kolebskiy).

(Korea, Forth-Theilerineis)

KOIABSKIY, N. A. Detat

"Ronoured Scientist of the RSFSR professor V. L. Yakimov and his role in the development of veterinary protonoology and chemotherapy."

Veterinariya Vol. 37, No. 3, 1960, p. 94

Annual Vol. Just

FROTASOV, A.I., dotsent; SIMNY, A.V., prof.; SMIRMOV, A.M., dotsent;

HAZHEMOV, A.M., dotsent; VILLWER, A.M., prof.; RASHMURIM, A.T.,

dotsent; SHAYALOV, K.I., prof.; VHILHER, A.A., prof.; HIKANGROV,

V.A., prof.; FROOTOV, V.P., dotsent; KUZMETSOV, G.S., prof.;

BOCHAROV, I.A., prof.; SHCHERBATIKH, P.Ye., prof.; TSION, R.A.,

prof.; OHIBANOVSKAYA, Ye.Ia., dotsent; ADMANIS, V.F., assistent;

KOLABSKIY, N.A., dotsent; MITSKEVICH, V.Tu., dotsent; GUSEVA, N.V.,

dotsent; MYSHKIM, P.P., dotsent; GUBAREVICH, Ya.G., prof.;

FEDOTOV, B.M., prof.; DOBIM, M.A., dotsent; SINOTKIM, V.A., prof.;

[decessed]; KUZ'MIN, V.V., prof.; YEVDOKIMOV, P.D., prof.; PGUIMKOV,

A.A., prof.; PGLYAKOV, P.Ye., red.; HARMOVA, L.G., tekhn.red.

[Concise hendbook for the veterinarian] Kratkii spravochnik veterinarnogo vracha. Leningrad, Gos.izd-vo sel'khoz.lit-ry, 1960. 624 p.

(Weterinary medicine)

KOLABSKIY, N. A., CHIZH, A. N., GAIDUKOV, A. KH. and TARVERDYAN, T. N.

"The Development of a Method of Conserving Hlood with a View to Retaining in it the Viability of the Dog Piroplasmosis and Cattle Babiellosis Virus."

Tenth Conference on Parasitological Problems and Diseases with Natural Reservoirs, 22-29 October 1959, Vol. II, Publishing House of Academy of Sciences, USSR, Moscow-Leningrad, 1959.

Leningrad Veterinary Institute and Leningrad Institute of Blood Transfusion

KOLABSKIY, N. A. Doc Vet Sci - (diss) "Study of immunity and the problem of immunization in several hemospopidioses." Leningrad, 1961. 29 pp; (Ministry of Agriculture RSFSR, Leningrad Veterinary Inst); 300 copies; price not given; list of author's works on pp 28-29 (13 entries); (KL, 7-61 sup, 254)

CIA-RDP86-00513R000723710019-1" APPROVED FOR RELEASE: 06/19/2000

KUZNETSOV, G.S., prof., otv. red.; BOCHAROV, I.A., prof., red.; VOKKEN, G.G., prof., red.; TSION, R.A., prof., red.; DMITROCHENKO, A.P., prof., red.; SINEV, A.V., prof., red.; FEDOTOV, B.N., prof., red.; CHERNYAK, V.Z., prof., red. Prinimali uchastiye:
NIKOL'SKIY, S.N., prof., red.; KHEYSIN, Ye.M., prof., red.;
GUSEV, V.F., dots., red.; KOLABSKIY, N.A., dots., red.

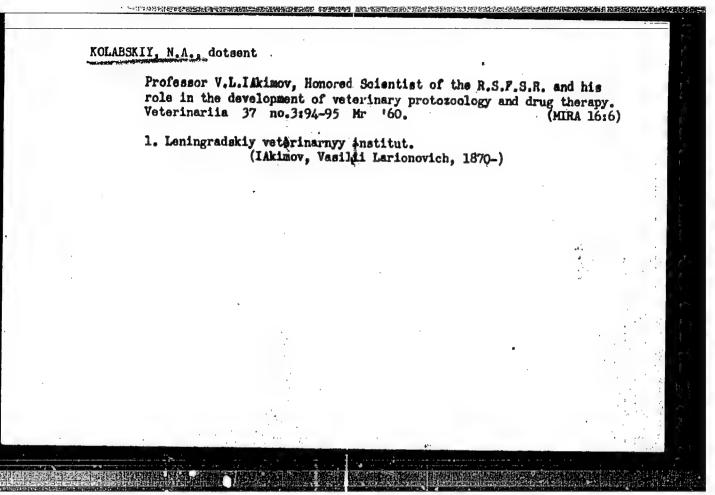
[Papers presented at the Conference on Protozoological Problems Dedicated to the 90th Anniversary of the Birth of Professor V.L. IAkimov] Sbornik rabot Nauchnoi konferentsii po protozoologicheskim problemam, posviashchennaia 90-letiiu so dnia rozhdeniia professora V.L.IAkimova. Leningrad, 1961. 292 p. (MIRA 15:6)

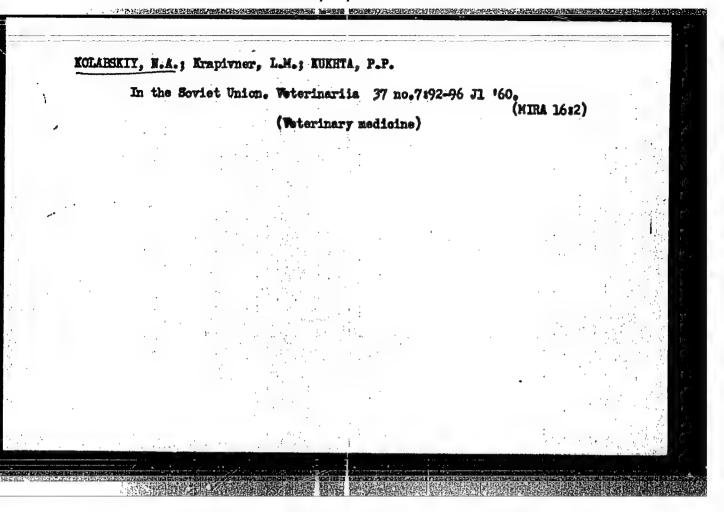
1. Nauchnaya konferentsiya po protozoologicheskim problemam, posvyashchennaya 90-letiyu so dnya rozhdeniya professora V.L. Yakimova. 2. Stavropol'skiy sel'skokhozyaystvennyy institut (for Nikol'skiy). 3. Institut tsitologii Akademii nauk SSSR (for Kheysin). 4. Leningradskiy veterinarnyy institu (for Kolabskiy). (Protozoology—Congresses)

KOLABEKT, N. A. BARSUKOVA, T. M., SUZ'KO, S. F. and TARVERDYAN, T. N. (Leningrad Veterinary Institute)

"Comparative evaluation of medicinal preparations in the coccidiosis of chickens"

Veterinariya, vol. 39, no. 7, July 1962 pp. 54





KOLABSKIY, N.A.; BARSUKOVA, T.M.; SUZ'KU, S.F.; TARVERDYAM, T.N.

Comparative evaluation of the therapeutic properties of some preparations against coccidiosis in chicks. Veterinariia 39 no.7:54-56
J1 '62.

1. Leningradskiy veterinarnyy institut.

CZECHOSLOVAKIA/Atomic and Molecular Physics - Low Temperature

D

Physics

Abs Jour : Ref Zhur Fizika, No 9, 1959, 20108

Author

: Kolac, M.

Inst Title

40

: Physics of Low Temperature

Orig Pub

: Pokroky mat., fys. a autron., 1958, 3, No 5, 575-588

Abstract

Scientific-popular article on helium temperatures and

super low temperatures.

Card 1/1

ς.

- 27 -

AUTHORS:

Koláč, Misand Bott, M.

CZECH/37-58-6-16/30

Non-conservation of Parity in the β -Decomposition (Nesaphováni parity při rospadu β)

PERIODICAL:

Ceskoslovensky Casopis Pro Fysiku, 1958, Nr 6.

pp 722 - 733 (Czech)

ABSTRACT:

During the second half of 1956 the problem of conservation of parity during weak interactions became very acute. From then onwards, a number of theoretical and experimental results were published. The greatest attention was paid to the problem of non-conservation of parity during decomposition of β -radioactive nuclei. In this paper, the experimental state in this field is reviewed on the basis of information which was published and available to the authors up to May, 1958. results are summarised in Table 1, pp 729-730. These author concludes that it can now be stated definitely that during β decomposition, parity does not remain conserved. Most of the information is based on Western work. There are 64 references, 54 of which are English, 3 German, 1 Swedish, 4 Soviet and 2 Czech.

Card1/2

KOLAC, Miroslay; NEDVED, Jiri; SOUKUP, Frantisek; SAFRATA, Stanislay; SVEC, Karel; SOTT, Miloslaw.

Equipment for the study of gamma radiation of oriented nuclei. Jaderna emergie 10 no.7:243-246 Jl*64

1. Institute of Nuclear Research, Czechoslovak Academy of Sciences, Rez.

8/037/61/000/001/007/007 **E024/E335**

THE TENTH OF THE PROPERTY OF T

AUTHOR: Kolac, Miroslay

TITLE: First National Conference on Low Temperatures

PERIODICAL: Československý časopis pro fysiku, 1961 No. 1, pp. 89 - 90

TEXT: The First National Conference was held on September 19-21, 1960. It was convened by the Ustav jaderného výzkumu CSAV (Institute of Nuclear Research, ČSAV) jointly with the Komise pro jadernou techniku pri Československé vědeckotechnické společnosti (Commission for Nuclear Engineering, Czechoslovak Scientific-technical Society).

S. Safrata (Institute for Nuclear Research) talked about low temperatures in nuclear physics. Cooling by liquid hydrogen and helium is used in vacuum technique for accelerators, in the study of optical hyperfine structure, to freeze defects in irradiated specimens and to obtain high-intensity beams of cold neutrons. High-energy elementary particles are studied with the aid of hydrogen bubble chambers and liquid hydrogen or helium is often used as targets for nuclear reactions.

Card 1/5

z/037/61/000/001/007/007 E024/E335

First National Conference on Low Temperatures

Recently, studies of the Mössbauer effect at low temperatures have become fashionable. At the Institute of Nuclear Studies, experiments are being prepared for the study of orientated nuclei at temperatures below 1 ok. A calorimeter with liquid nitrogen for absolute dosimetry of radioactive radiations was described by Z. Kovar (Institute of Nuclear Research). J. Pakes (FÜ ČSAV) discussed magnetism at low temperatures. Magnetic research at the Institute of Physics aims at studying antiferromagnetic materials at low temperatures. L. Stourak (UTF CSAV) discussed the use of low temperatures in semiconductor physics, such as the Hall effect, thermal conductivity, thermoelectric effects, cyclotron resonance, etc. The Institute of Technical Physics intends to include these subjects in its work. Low temperatures permit an increase in resolution of spectrometers for nuclear and electron resonance. M. Odehnal (UJV) discussed their use for the analysis of Card 2/5

Z/037/61/000/001/007/007 E024/E335

First National Conference on Low Temperatures

hyperfine structures of resonance lines and for the study of magnetic moments of nuclei. He further discussed the dynamic polarization of nuclei and MASER. The Institute of Nuclear Research has studied two-quantum transitions and the dynamic polarisation of protons at room temperature and intends to study the dynamic polarization at low temperatures. M. Litomisky and M. Kolac (UJV) discussed some experimental methods at low temperatures. A. Cizek reported measurements of resistants with an accuracy of 10⁻⁴. K. Malek (CKD Stalingrad) described an electromagnet, type LAMA 80, with a gap adjustable from 25-125 mm, maximum diameter of the pole pieces 280 mm. With a gap of 60 mm and with pole pieces 210 mm in diameter, a field of 23 k0e is achieved. The consumption is up to 80 kW.

Two helium liquefiers have been installed in Czechoslovakia

Card 3/5

Z/037/61/000/001/007/007 E024/E335

First National Conference on Low Temperatures

this year. One was made in Czechoslovakia following a Soviet construction, the other was made in Germany. J. Prušák (ÚJV) talked about one of the two plants built in Czechoslovakia for liquefying helium at the rate of 10 litres per hour, using pre-cooling with liquid nitrogen, hydrogen and the Joule-Thomson phenomenon. M. Krizek spoke of a second helium liquefier of a 3 litres per hour capacity, manufactured by Linde, West German. V. Sahanek (FU) spoke of a hydrogen liquefier built on the basis of Soviet designs. J. Nedvěd: (ÚJV) discussed the problems of transporting liquid helium. Several speakers discussed methods used in the large-scale production of oxygen. J. Veleta (Stalin: Works) spoke of a low-pressure method of manufacturing oxygen. A. Urban (Královopolské strojírny, Praha - Královopole Engineering Works, Prague) spoke of the Czech-produced Card 4/5

Z/037/61/000/001/007/007 E024/E335

First National Conference on Low Temperatures

low-pressure oxygen-manufacturing plant, NKP-5. L. Vins (ZVÚ) spoke on the influence of separating gas mixtures on using cooling cycles.

V. Smolfk (ZVU) spoke of designs and materials for such equipment.

O. Scholz (SVUMT, Prague) spoke of testing materials used in deep cooling plant.

J. Ružička (UJV) discussed the use of low temperatures in the production of heavy water.

There were 80 participants in the conference and it was suggested that a second conference be held in 1962.

ASSOCIATION: Ústav jade

Ústav jaderného výzkumu, Řež (Institute for Nuclear Research, Rež)

SUBMITTED:

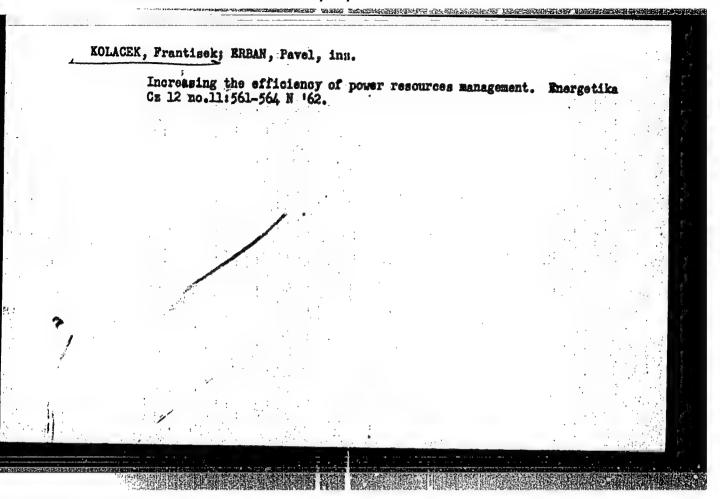
October 1, 1960

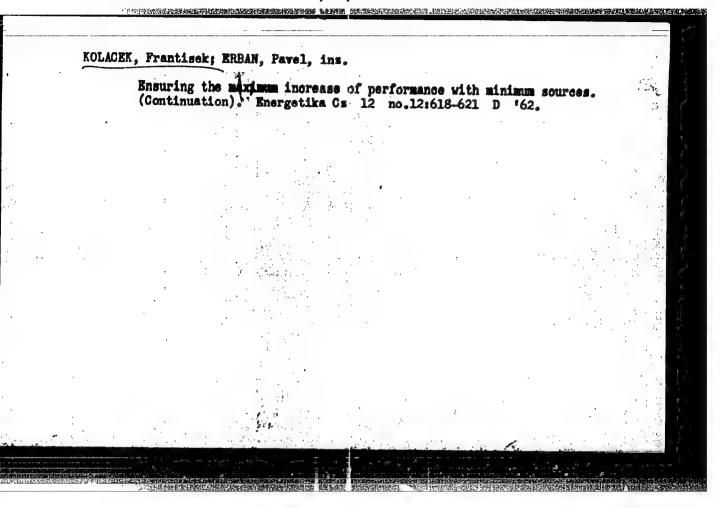
Card 5/5

KOLACEK, Frantisek; ERBAN, Pavel, ins.

Problems of the development of power engineering in Czechoslovakia. Energetika Cz 12 no.10:505-508 0 162.

1. Vysoka stranicka skola pri Ustrednim vyboru Komunisticka strany Ceskoslovenska (for Kolacek). 2. Ministerstvo paliv a energetiky (for Erban).





KOLACEE, Karel

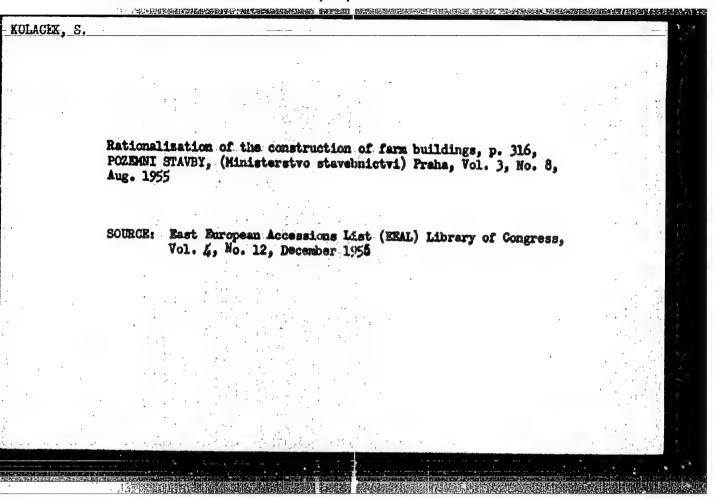
Statistical evaluation of 1000 cataract operations. Cesk. ofth, 16 no.2:160-163 Mr '50

1. Coni oddeleni MMZ Cetrava, prednosta pris. MUDr. M. Rubecek. (CATARACT EXTRACTION statist.)

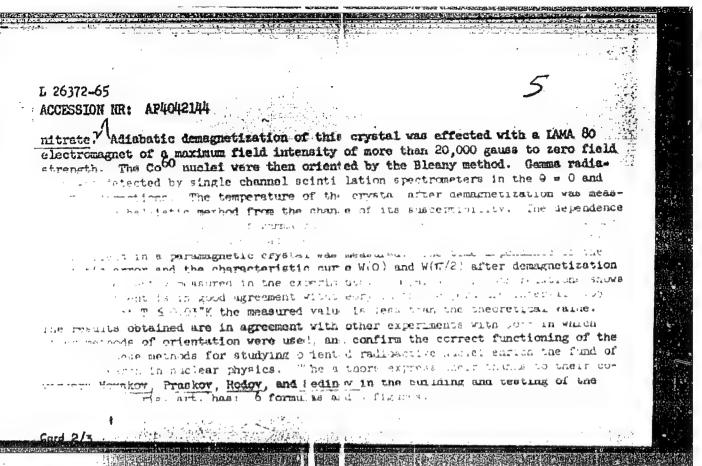
Kolacek, S.

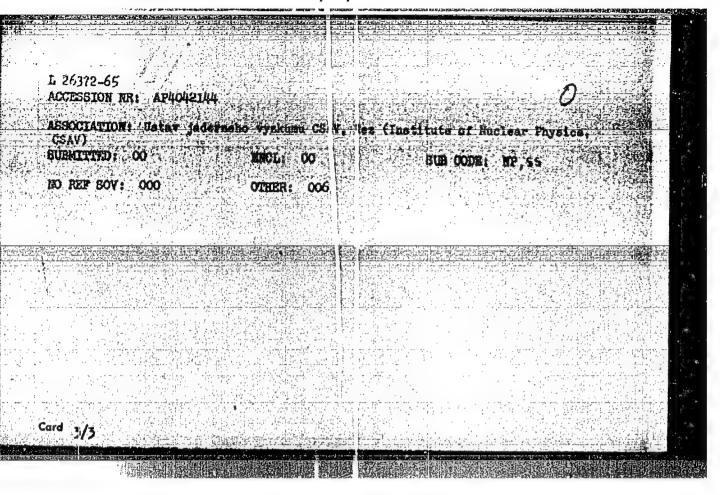
Construction of farm buildings. p. 292. NOVA TECHNIKA. (Rada vedeckych technickych spolecnosti pri Ceskoslovenske akademii ved) Praha. Vol. 4, no. 7, July 1954.

Source: EEAL LC Vol. 5, No. 10 Oct. 1950



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ACCESSION NR: AP4042144	z/0038/64/010/007/0243/0246
AUTHOR: Kolma Alteonlar (Kolach, M.); Nedwd. Jir Stanislav (Shafrata) 8.) Bott, Hiloslav (Shott. M	.); Svec, Niter (Silvers, N.)
a series for studying the games rad atten	
000000 Jaierns energie, v. 10, no. 7, 1961, 243-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
demagnetization, one stage cryostat, liquid helium insulation, scintillation spectrometer	ramagnetic crystal, adiabatic bath, vacuum casing, thermal
ABSTRACT: The article describes a device with which the control of the first time in the CSR is a temperature of the control o	ture of 1°K to which the crystal perimental space with the sample praying of which. Thermal house with the sample paying of which you glass, shrying the apparatus and to end to the perechon of the whole device 10°C.
Card 12	





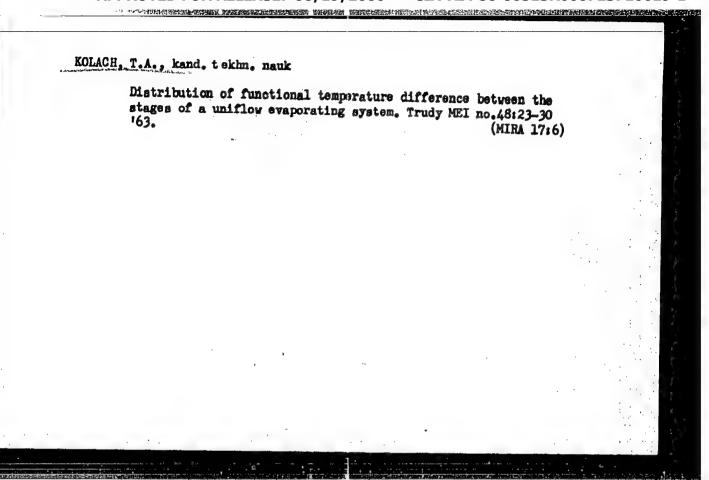
1. KOLACH, T. A.

2. USSR (600)

4. Pumping Machinery

7. Selection of centrifugal pumps and means for increased economy on pump installations. Prom. energ. No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.



KOLACH, T. A.

"Investigation of the Influence of the Speed of Circulation and the Vapor Content of a Mixture on the Process of Heat Exchange While Boiling in a Vertical Evaporation Apparatus." Cand Tech Sci, Moscow Order of Lenin Power Engineering Instimeni V. M. Moletov, Min Higher Education USSE, Moscow, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

80: SUM No. 556, 24 Jun 55

KOLACH, T.A.

USSR/Processes and Equipment for Chemical Industries - Processes and Apparatus for Chemical Technology, K-1

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63911

Authors Sorokin, A. F., Kolach, T. A.

Institution: None

Title: Effects of Some Factors on Heat Ruission During the Boiling of Liquid

in Pipes

Original

Periodical: Tr. Mosk. energ. in-ta, 1956, No 24, 41-63

Abstract: Experimental investigation of the process of boiling of water and

aqueous solutions of sugar in a vertical pipe, with determination of mean values of the coefficient of heat emission a, by zones (in height) of the pipe. Use was made of a steel pipe 32 mm inside diameter and 2 m high heated with steam and connected into a closed circuit of natural or forced circulation. In height the pipe is divided in 3 zones; at the bottom part of each zone is provided a collector for the removal and measuring of the condensate formed. Thermal loads q

Card 1/3

USSR/Processes and Equipment for Chemical Industries - Processes and Apparatus for Chemical Technology, K-1

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63911

Abstract: were varied within the limits from 103 to 1.5.105 kcal/m2 hour. It was found that the dependence of mean value of a, over the entire pipe, on q, during boiling of water is represented by the equation $\alpha = 81.8q^{0.4}$; on boiling of sugar solutions this dependence is of the form: with a 10% solution $\alpha = 56.75q^{0.43}$; with a 20% solution $\alpha = 33.4q^{0.47}$ and with a 40% solution $\alpha = 22.65q^{0.49}$. With increase in pressure the relative increase in heat emission intensity α/α_0 is proportional to $(p/p_0)^{0.2}$ wherein α is the coefficient of heat emission at pressure p and do at atmospheric pressure po. To determine the influence of vapor content β of the flow, a comparison of α by zones was carried out. It was found that β increases very rapidly along the pipe and at the section 0.2 of the height from the bottom of the pipe reaches 80-90%. At the same time of depends little on P. but with $\beta > 95\%$ it drops sharply since with a high β great velocities of the vapor occur which strip the film of liquid from the pipe wall. From the results of experiments relating to the middle zone, which is characterized by a boiling over the entire surface, the general correlation has been determined:

Card 2/3

SOV/143-58-9-9/18

Kolach, T.A., Candidate of Technical Sciences; Zenkevich, V.B., Engineer AUTHOR:

A Study of the Specific Heat of Electrolytic Alkalis TITLE:

(Issledovaniye teployemkosti elektroliticheskikh

shchelokov)

Izvestiya vysshikh uchebnykh zavedeniy - Energetika, PERIODICAL:

1958, Nr 9, pp 61-64 (USSR)

To determine the specific heat of electrolytic alkalis, ABSTRACT:

the method of direct heating with an isothermic cover for the calorimeter was used. The paper describes the experimental equipment and the measuring methods. The

following solutions were investigated: NaOH, NaCl, Na₂CO₃, NaClO₃, Fe (natural) and SO₄ in weak, average and strong concentrations. Tests were carried out in the temperature range 40 - 100°C. The accuracy of empirical data was checked, and it emerged that the

maximal possible proportional error when determining $c_{\rm p}$ (specific heat) does not exceed 0.34%. The lowest

Card 1/2

A Study of the Specific Heat of Electrolytic Alkalis CIA-RBR86-00513R000723710019-

specific heat values for any given temperature were obtained with strong alkalis (42.6°C - 101.17°C, 0.785 - 0.806) which have the largest NaOH content and the smallest NaCl content. The largest specific heat values were found with the average alkalis (42.0°C -100.4°C, 0.850 - 0.874); the weak alkalis despite a considerable drop in the NaOH content in the solution compared to average electrolytes, had lower specific heat values (41.8°C - 100.6°C, 0.821 - 0.845). (The values for specific heat are expressed in cal3/kgoC.) This is explained by the fact that in weak alkalis the NaCl content is considerably higher than in the average ones. There are & sectional diagrams, 2 tables and 2 Soviet references.

ASSOCIATION: Moskovskiy ordena Lenina energetichęskiy (Moscow Power Engineering Institute) institut

SUBMITTED: May 12, 1958

Card 2/2

SOV/143-58-9-10/18

AUTHOR:

Kolach, T.A., Candidate of Technical Sciences;

Grigor yev. V.A., Engineer

TITLE:

Study of the Viscosity of Electrolytic Alkalis

(Issledovaniye elektroliticheskikh shchelokov)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy - Energetika,

1958, Nr. 9, pp 65-67 (USSR)

ABSTRACT:

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The paper contains the results of experimental tests on the viscosity of electrolytic alkalis. The test equipment is first described. A comparative method is employed using a Pinkevich glass viscosimeter for measuring viscosity. The equipment consists of a vert-

measuring viscosity. The equipment consists of a vertical electric furnace, in which a metal pot-thermostat filled with turbine oil is placed. The viscosimeter is placed vertically in the pot, in the walls of which heat proof glass windows are let in to observe as the fluid flows out into the capillaries of the viscosi-

meter. The temperature of the solution was measured with a copper-constantan thermoelement. To record the

80V/143-58-9-10/18

Study of the Viscosity of Electrolytic Alkalis

temperature field in the thermostat fluid a three-junction copper constantan differential thermoelement was used. The temperature field was also measured in a radial direction using a comb of 4 thermoelements. The temperature difference between the lower end of the capillary and the measuring ball did not exceed 0.25°C. The viscosity of the solution was determined by the formula:

 $V_t = c_{tr} - \frac{0.56 \, Q \, \tau}{8 \, L \, \tau} \quad ccm$

where V_{+} is the kinematic viscosity of the solution, c_{t} = the viscosimeter constant at the test temperature in ccm/sec, τ = outlet time of the work volume (in secs) of the fluid, L = capillary length in mm and $Q\tau$ = work volume of the fluid which flows through the viscosimeter in the time τ . There is 1 graph and 3 Soviet references.

ASSOCIATION: Moskovskiy ordena Lenina energeticheskiy institut (Moscow Power Engineering Institute)

Card 2/3

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723710019-1"

5(4), 5(2)

80V/64-59-1-19/24

AUTHORS:

Candidate of Technical Sciences, Grigor'yev,

V. A., Candidate of Technical Sciences

TITLE:

Exchange of Experience (Obmen opytom). Investigation of the

Viscosity of Electrolytic Lyes (Issledovaniye vyazkosti

elektroliticheskikh shohelokov)

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 1, pp 85-87 (USSR)

ABSTRACT:

The investigations mentioned in the title were made with solutions the composition of which (Table) corresponded to that of electrolytic lyes in evaporating plants. The viscosity was determined by the comparison method by use of glass viscosimeters according to Pinkevich. The viscosimeters were calibrated by the Institut mer i izmeritel'nykh priborov (Institute for Measures and Measuring Instruments). The measuring instrument (Fig 1) was provided with an electric furnace, the temperature of the test solution was measured with copper/Constantan thermocouples. The temperature gradient was also measured. The measurement of temperature was carried out according to a compensation scheme $(\pm~0.06^{\circ})$ by means of a potentiometer PPTV-1 and a reflecting galvanometer M-21. The kinematic viscosity of the solutions was determined in the temperature range of between 20° and 10-15° below the boiling

Card 1/2

SOV/64-59-1-19/24 Exchange of Experience. Investigation of the Viscosity of Electrolytic Lyes

point of the solution, and was represented graphically in comparison with data (Ref 3) on the viscosity of mixtures of aqueous NaOH and NaCl solutions (Fig 2). The evaluation of the experimental results according to an equation (4) on the temperature course of the viscosity curves is also indicated (Fig 3). There are 3 figures, 1 table and 3 Soviet references.

Card 2/2

SOV/96-59-4-20/21

AUTHOR:

Kolach, T.A. Candidate of Technical Science

TITIE:

A Conference Between Technical Colleges on the Intensification and Combination of production processes in industrial power engineering (Mezhvuzovskaya konferentsiya po intensifikatsii i kombinirovaniyu

proizvodstvennykh protsessov v promyshlennov teploenergetike)

PERIODICAL: Teploenergetika, 1959, Nr 4, pp 95-96 (USSR)

ABSTRACT:

At the end of December 1958, at the Moscow Power Institute, there was held a scientific conference between technical colleges on the intensification and combination of production processes in industrial thermal power engineering organised by the Ministry of Education and GNTK (State Scientific and Technical Inspection) of the Council of Ministers of the USSR. The conference was attended by 230 delegates from power engineering, polytechnical and technological colleges and by representatives from industrial undertakings, scientific research and design institutes and other organisations from 29 towns of the Soviet Union. Consideration was given to a number of organisational and scientific-

Card 1/3 technical problems in industrial thermal power engineering.

SOV/96-59-4-20/21

A Conference Between Technical Colleges on the Intensification and Combination of Production Processes in Industrial Power Engineering

The following reports were read at the plenary sessions: Tasks and prospective development of Soviet industrial thermal power engineering by Engineer I.G. Tikhomirov (GNTK); The training of engineering and Scientific Staff for industrial power engineering by Doctor of Technical Sciences P.D. Lebedev, Ministry of Higher Education of the USSR; The organisation of thermal-technical service at industrial undertakings by Engineer V.A. Gerasimenko, GOSPLAN, USSR. The work of the conference was divided between a number of sections namely, furnace engineering, heat supply and thermal power installations, drying and heat exchange equipment. Each section had three sessions and altogether 45 reports were read and a large number of delegates took part in the discussion. The subjects discussed at the conference are briefly reviewed. The faculty of industrial thermal power engineering of the Moscow Power Institute, as the leading faculty in this field, was given the task of preparing staff for technical colleges in the provinces and for other laboratories. The recommendation was made to organise

Card 2/3

80V/96-59-4-20/21

A Conference Between Technical Colleges on the Intensification and Combination of Production Processes in Industrial Power Engineering

a central scientific research institute in industrial thermal power engineering to plan and coordinate scientific investigations in this subject. However, a single institute could not possibly cover the field effectively and various other institutes were asked to take part in such work. The need for a new journal on thermal power engineering was emphasised, either a new journal should be started or Teploenergetika should be enlarged or the journal Promyshlennaya Energetika, which is now a departmental journal which cannot deal with all the problems of industrial thermal power engineering, should be reconstructed. A number of examples of bad work—of various kinds were brought to light.

Card 3/3

8/170/60/003/07/07/01! B012/B054

82233.

5.1210

فلتر وسعس

Kolach, T. A., Zenkevich, V. B.

TITLE:

AUTHORS:

A. Generalised Relationship for the Viscosity of

Distilled Fuels

PERIODICAL:

Inshenerno-fisicheskiy shurnal, 1960, Vol. 3, No. 7,

pp. 95 - 97

TEXT: The authors study the possibility of drawing the temperature curve of viscosity according to one value for the distilled fuels now in use. The petroleum products used in the experimental investigation of viscosity are listed. The kinematic viscosity was measured in the temperature range between 20 and 100° C. A viscosimeter of the Finkevich type was used. A correction was introduced for the kinetic fluid energy and for the temperature-dependent expansion of the viscosimeter glass (Ref. 3). With the use of the reduced parameters, the data obtained were joined to a curve: $y^{\pm} = y/y_{0.65}$ and $\tau = T/T_{\rm m}$. Y is the kinematic viscosity at T in ${}^{\circ}$ K; $T_{\rm m}$ is the boiling point of the mean volume;

Card 1/2

A Generalized Relationship for the Viscosity S/170/60/003/07/011 of Distilled Fuels B012/B054 82233

 $\rho_{0.65}$ is the value of ρ at $\tau=0.65$. All experimental points (Fig. 1) lie with sufficient accuracy on one single, slightly ascending curve. If such a curve is drawn for a reference substance, the temperature dependence of viscosity can be reproduced for another related substance whose distillation results are known. Only one experimental viscosity value is needed for the calculation of $\rho_{0.65}$. There are 1 figure and 3 references: 2 Soviet and 1 German.

Card 2/2

SOKOLOV, Tefin Takovlevich; ZINGER, Nikolay Mikhaylovich; RERMAN, L.D.,
doktor tekhn.nauk, retsensent; KOLACH, T.A., kand.tekhn.nauk,
red.; LARIOMOV, G.Ke., tekhn.red.

[Jet apperatus] Struinye apparaty. Moskva, Gos.energ.isd-vo.
1960. 207 p.
(MIRA-13:7)
(Jets) (Hydraulic engineering)

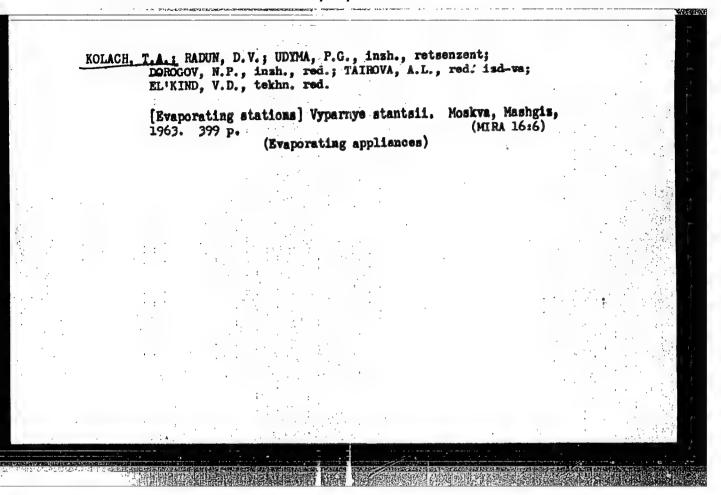
GRIGOR'YEV, V.A., kand. tekhm. nauk; KOLACH, T.A., dots.;
SOKOLOVSKIY, V.S., assistent; TEMEN, R.M., inzb.;
LEBEDEV, P.D., dottor tekhm. nauk, prof., red.;
ANTIKAYN, P.A., red.; BORUNOV, N.I., tekhm. red.

[Concise manual on heat exchangers]Kratkii spravochnik po
teploolmennym apparatam. By V.S.Grigor'ev i dr. Pod red.
P.D.Lebedeva. Moskva, Gosenergoizdat, 1962. 255 p.

(Heat exchangers)

(Heat exchangers)

KOLACH, T.A., kand.tekhn.nauk, dotsent Calculation of the material of an evaporating system during the concentration of crystallising solutions. Isv. vys. ucheb. sav.; energ. 5 no.7:109-112 Jl '62. (MIRA 15:7) 1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena kafedroy sushil'nykh i teploobmennykh ustanovok. (Evaporating appliances)



KOLACH, T.A., kand.tekhn.nauk, dotsent Some results of the work of the Department of Industrial Power Engineering of Moscow University. Ixv. vys. ucheb. sav.; energ. 6 no.2:45-48 F '63. (MIRA 16:3) 1. Dekan fakul'teta promyshlennoy teploenergetiki Moskovskogo ordena Lenina energeticheskogo instituta. (Power engineering)

KOLACH, T.A., kand.tekhn.nauk, dotsent

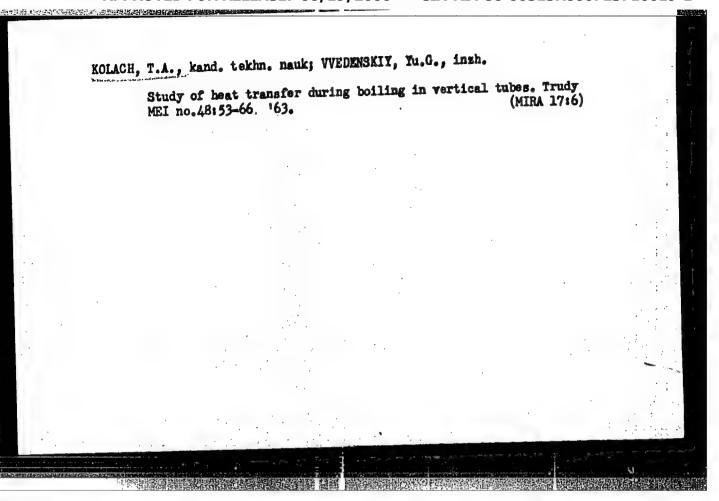
Thermal design of a single-pass evaporator. Isv. vys. ucheb.
sav.; energ. 6 no.2:65-70 f '63. (MIRA 16:3)

1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena kafedroy sushil'nykh ustroystv. (Evaporating appliances)

KOLACH, T. A., kand. tekhn. nauk, dotsent

Scientific and technical problems of Soviet industrial thermal power engineering. Izv vys ucheb zav; energ 7 no. 1:54-63 Ja *64. (MIRA 17:5)

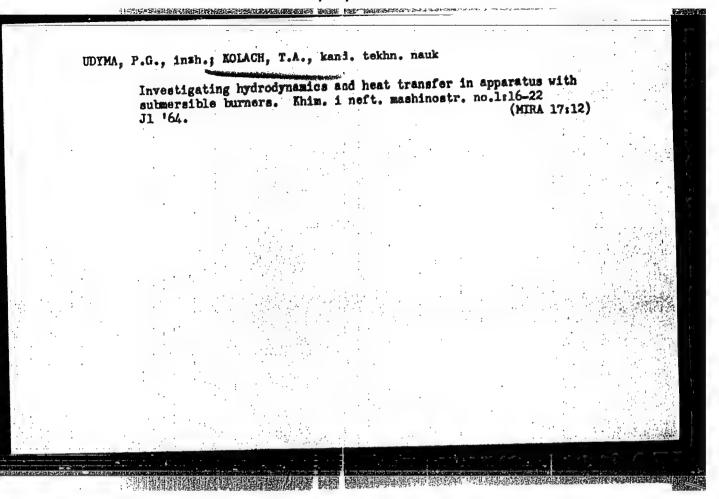
1. Hoskovskiy ordena Lenina energeticheskiy institut.



VOLKOV, V.F., kand. tekhn. nauk; LEBEDEV, P.D., prof.; SOKCIOV, Ye.Ya.; SYMENENKO, N.A.; KOLACH, T.A., dotsent; IVANOV, A.N.; TIFHEMIROV, I.G.; PAVLOV, M.N.

Training of engineers in the field of industrial power engineer'ng. Prom. energ. 19 no.11:30-32 N '64. (MIR! 18:1)

1. Ural'skiy politekhnicheskiy institut imeni S.M.Kirova (for Volkov). 2. Moskovskiy ordena Lenina energeticheskiy institut (for Lebedev, Sokolov, Semenenko). 3. Fakul'tet promyshlennov teploenergetiki Moskovskogo ordena Lenina energeticheskogo institut (for K-lach). 4. Gosudarstvennyy komitet po koordinatsii nauchno-issledovatel'skikh rabot SSSR (for Ivanov). 5. Nauchno-issledovatel'skiy institut Soveta narodnogo khozyaystva SSSR (for Tikhomirov). 6. Gosudarstvennyy soyuznyy institut po proyektirovaniyu metallurgicheskikh zavodov (for Pavlov).



KOLACH, T.A., kand.tekhm.nauk, dotsent; KOPCHIKOV, I.A., inch.

Study of boiling in a thin film. Izv.vys.ucheb.zav.; energ. 8
no.10:50-55 0'65.

1. Moskovskiy ordena Ienina energeticheskiy institut. Predstavlena kafedroy teploobmennykh i sushil'nykh ustroystv.

не. (Клиника геноррагической ликорадии

A. A. Kolachev and Y. Y. Kosovskiin. Клиническая Мерипина [Кііл. Мес., Mosk.] 27, No. 8, 42—48, Aug., 1949. 10 refs. на Буковино)

KOLACHEY

cases of haemorrhagic fever in South-west Bukovina, occurring mainly during June, July, and August. Clinical and laboratory investigations at the Czernovits Medical Institute led to the conclusion that the authors were dealing with a disease which had not previously been known to exist. Most cases occurred amongst forest workers and children (gathering mushrooms) who had been bitten by ticks (Inodes richus). The illness was not found to be contagious and all age-groups were affected Since 1947 the authors have observed a number of

The incubation period was 10 days. The conect was said as with a samperature of 39 to 40° C., handsolve and general analone. The temperature usually fell on the 7th day, but sometimes a short relapse occurred. There was hypersonic of the face, relapse occurred. There was hypersonic of the face, about the property of the first more than the face of the life. In more than the face of the life is not sometimes here of the life for the face of the life.

7 1950 Abstracts of World Medicine Vol

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KOLACHEV, B. A. and PETRCV, D. A.

"Aging of Copper and Gold & lloys" Tr. Mosk. Aviats. Tekhnol. in-ta, 23, 1954, 33-43

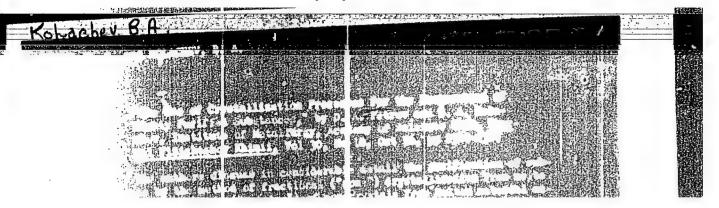
Microhardness and electric resistivity of Cu₂Au and CuAu Alloys were Studied at 600° hardening and at loo, 135, 170, and 205° annealing. The hardness-time curve of CuA u alloy at 170 and 205° exhibits two maxima, due to the difference in the speed of aging process of the middle grain face. The maximum aging effect of Cu₃Au predominates at 205° and the hardness increases maximum aging effect of Cu₃Au predominates at 205° and the hardness increases 33% as compared with tempered alloy. The electric resistivity does not change 31% and 170° and drops at 205° only after 9 hr duration. (RZhFis No 11 1955)

KOLACHEV, B. A.

KOLACHEV. B. A.: "Phenomena observed in the crystallization of fused metals and some aspects of their practical application". Moscow, 1955. Min Higher Education USSR. Moscow Aviation Technological Inst. (Dissertations for the Degree of Candidate of Technical Sciences)

SO: Knizhnava letopis!, No. 52, 24 December , 1955. Moscow.

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723710019-1



137-58-4-8032

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 236 (USSR)

AUTHORS: Petrov, D.A., Kolachev, B.A.

TITLE: Redistribution of Impurities During Crystallization, and Forms

Taken by This Process in Crystal Structure (Pereraspredeleniye primesey pri kristallizatsii i formy proyavleniya etogo

protsessa v strukture kristalla)

PERIODICAL: V sb.: Rost kristallov. Moscow, AN SSSR, 1957, pp 159-169

ABSTRACT: The alloys Al+4% Cu and Sn+5% Sb are used to show that the

distribution of impurities along single crystals grown by the Chokhral'skiy method depends upon the rate at which the crystal is drawn out. At high rates the impurities undergo virtually uniform distribution, but as the speed decreases the nonuniformity increases. Impurities are distributed in specimens in the form of layers that may be identified by X-ray or deep etching. The stratified distribution of the impurities results in a periodic change in their properties and, specifically, in their microhardness. The stratified structure (SS) is accompanied by a fib-

hardness. The stratified structure (SS) is accompanied by a fibrous one or a substructure. The width of the fibers diminishes with rate of drawing out and disappears completely at very low

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137-58-4-8032

Redistribution of Impurities During (cont.)

rates. A substructure in the form of regular honeycombs is observed on the surface of castings of technically pure Pb. Other instances in which substructures are seen are presented. SS are found in the grains of ingots cast in molds, and also in crystais grown from supersaturated solutions containing impurities. The conclusion is drawn that SS is a general phenomenon possessed by all substances under given conditions. SS results from the periodic entrainment by the growing solid phase of the impurities accumulating at the plane of crystallization because of incomplete diffusion in the liquid phase.

1. Single crystals--Impurities--Distribution 2. Metals--Impurities --Structural analysis 3. Metals--Impurities--Properties

Card 2/2

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723710019-1

KOLACHEV, B. A. (Cand. Tech. Sci.)

"The Effect of Chromium, Manganese, and Iron on the Natural Aging of Aluminum-Copper ALlloys." In book - Physical Metallurgy and Technology of Heat Treatment. Moscow.

Oborongiz, 1958, 179 p.

Results are given of an investigation of the effect of chromium, manganese, and iron on the aging of aluminum alloys containing 4 percent of copper. There are 9 references, of which

18(7),18(6)

AUTHORS:

Livanov, V. A., Bukhanova, A. A., Kolachev, B. A. SOV/163-58-4-44/47

TITLE:

Influence of Hydrogen on the Mechanical Properties of Titanium and Its Alloys (Vliyaniye vodoroda na mekhanicheskiye svoystva

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titana i yego aplavov)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 4, pp 248-254 (USSR)

ABSTRACT:

This investigation concerned the kinetics of the interaction of titanium and its alloys with hydrogen, as well as the influence of hydrogen on the mechanical properties of titanium and its alloys, using domestic technically pure titanium as starting material. For the time being, the investigation was restricted to the influence of hydrogen on the mechanical properties of titanium and its alloys in the form of smooth specimens with medium rates of deformation at room temperature. Technically pure titanium and its alloys VT-3, VT-3-1, VT-6, VT-2-1 were investigated. The first three alloys are $\alpha + \beta$ alloys, the last is an α -titanium alloy. The investigations showed that all four alloys absorb the hydrogen more intensely than the technically pure titanium. This seems to be caused by the smaller diffusion rate of hydrogen in titanium in the

Card 1/2

Influence of Hydrogen on the Mechanical Properties of Titanium and Its Alloys

SOV/163-58-4-44/47

presence of alloying components. The strength characteristics of the technically pure titanium depend, in a wide range of concentration, very little on the hydrogen content, while the stretching and transverse contraction decrease with an increase in hydrogen content. But in the ranges corresponding to real conditions of production, the limit of strength, the flow limit, the stretching, and the transverse contraction are virtually independent of the hydrogen content. The notch impact strength changes little up to 0.015% H₂, but then falls suddenly down to very low values.— The behavior of the two alloy groups was different. A microstructure analysis was carried out to explain the strong differences. The causes are shown here for such different behavior. There are 5 figures, 2 tables, and 10 references, 2 of which are Soviet.

ASSOCIATION:

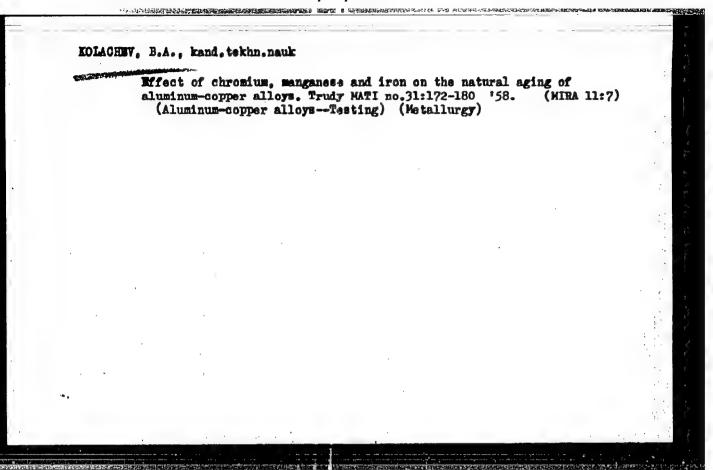
Moskovskiy aviatsionnyy tekhnologicheskiy institut

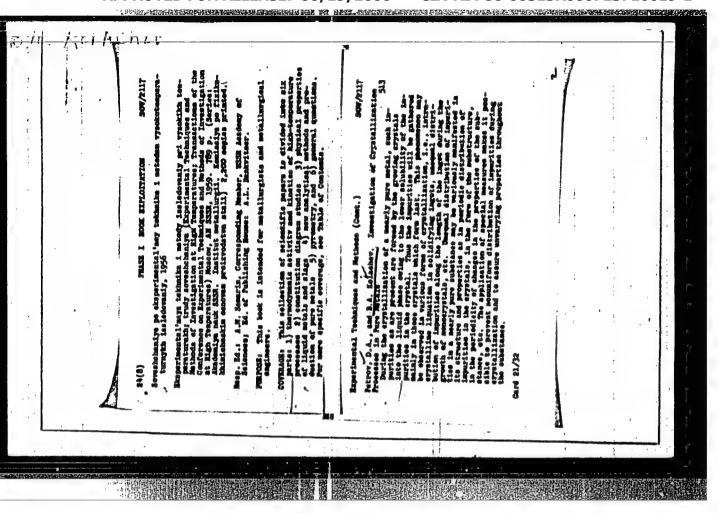
(Mcscow Air Technological Institute)

SUBMITTED:

October 5, 1957

Card 2/2

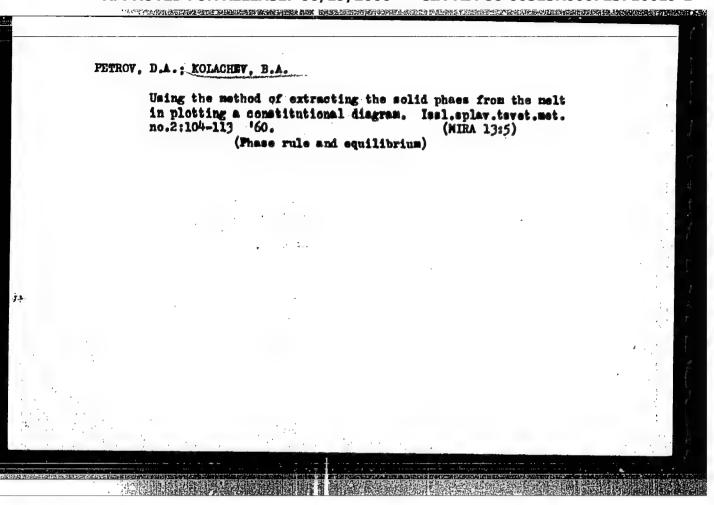




APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723710019-1"

KCHACHEV, B.A., kand.tekhm.nauk [translator]; PETROV, D.A., prof., red.; L'YOVA, H.M., red.; PRIDAMESEVA, S.V., tekhn.red.

[Silicon] Kremnii; abornik statei. Moskva, Izd-vo inostr.lit-ry. 1960. 435 p. (Translated from the English). (MIRA 13:11) (Silicon)



APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723710019-1"

KOLACHEV, BA

3/149/60/000/004/007/009

AUTHORS:

Livanov, V.A., Kolachev, B.A., Cabidullin, R.M., Musatov, M.I.

TITLE:

Distribution of Alloying Components in a Titanium Ingot Obtained by Using a Consumable Portion Electrode

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1960. No. 4, pp. 137-144

TEXT: In the preparation of titanium ingots by the method of consumable electrodes, insufficient homogeneity of the composition and of the mechanical properties was observed over the length and cross section of the ingot. A more homogeneous electrode may be obtained by splitting the titanium sponge into portions and by adding the alloying elements to each portion. If their dimensions are sufficiently small in respect to the liquid pool, the non-uniform distribution of the components in the ingot may be reduced. It may also be decreased by the method of repeated remelting. However, the heterogeneity of the ingot obtained from a portion electrode, will depend, even after repeated remelting, on the ratio of the liquid pool volume to the portion volume. The authors investigated the distribution of alloying elements in an ingot obtained from a portion electrode and determined the permissible dimensions of the portion of the electrode. Formulae are derived

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S/149/60/000/004/007/009

Distribution of Alloying Components in a Titanium Ingot Obtained by Using a Consumable Portion Electrode

for: the distribution of the alloying component over the length of an ingotobtained from a portion electrode with a non-uniformly distrubuted component; the distribution of the alloying component over the length of a titanium ingot after repeated remelting; the distribution of the alloying component in an electrode containing layers of pure Ti and a pure component. Figure 3 shows the distribution of an alloying component (A1) along a GT-5 (VT-5) alloy ingot calculated by the derived formulae for a case when the volume of the liquid pool is six times greater than the volume of the portion. The distribution of alloying components is nonuniform in the length and in the cross section. The found equations are used to. calculate the distribution of the components after repeated remelting and it is established that this process may produce a sufficiently homogeneous material even if the components are distributed non-uniformly in the initial portion electrode, if the ratio of the liquid pool to the portion volume is sufficiently high. To carry out the quantitative verification of the formulae derived, a titanium ingot was cast of an electrode in which 5 cm layers, containing besides Ti 25% Cr-Al alloy, were pressed between 35 cm titanium layers. The volume of, the liquid pool was 1/3 of the volume of one portion. The portions consisted of an alloyed and an unalloyed layer. Figure 5 shows experimental and calculated curves of the distribu-Card 2/3

S/149/60/000/004/007/009

Distribution of Alloying Components in a Titanium Ingot Obtained by Using a Consumable Portion Electrode

tion of Cr and Al over the ingot. They are in a satisfactory agreement. The considerable non-uniformity in the distribution of Cr and Al over the ingot is caused by the fact that the size of the portions is large in respect to the volume of the liquid pool. Calculations made with the use of the described equations show that satisfactory homogeneous ingots are obtained after second remelting, if the volume of the liquid pool exceeds by three or more times the volume of one electrode portion. In this case the deviation from the rated composition does not exceed \pm 0.05. There are 1 diagram and 4 sets of graphs.

ASSOCIATION: Moskovskiy aviatsionnyy tekhnologicheskiy institut (Moscow Technological Aviation Institute) Kafedra metallovedeniya i tekhnologii termicheskoy obrabotki (Department of Metallography and Technology of Heat Treatment)

SUBMITTED: March 9, 1960

Card 3/3

18.7500 also 2308, 2508

S/076/60/034/008/010/014 B015/B054

AUTHORS:

Petrov, D. A., Kolachev, B. A. (Moscow)

TITLE:

Investigation of the Purification of a Substance From Two Impurities by Methods Basing on the Difference in Phase

Composition During Crystallization

PERIODICAL:

Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 8,

pp. 1802-1810

TEXT: To produce highly pure substances it is usual, at present, to apply methods which are based on the difference in composition of the liquid and solid phase during crystallization, such as the extraction of the solid phase from the melt according to Chokhrol'skiy, or the zone melting. In some investigations of semiconductor metallurgy (Ref. 1) it was assumed that the distribution coefficients of the impurities in a material are equal to the distribution coefficients of these impurities in the corresponding binary systems, which is incorrect since there is an interaction between the material and the impurities. As the interaction

Card 1/3

Investigation of the Purification of a Substance From Two Impurities by Methods Basing on the Difference in Phase Composition During Crystallization

S/076/60/034/008/010/014 B015/B054

can be seen from the phase diagram, the distribution coefficients of the impurities should be determined from the corresponding phase diagram. In the present case, the authors show, with the aid of Konovalov's rule among other things, that in an arbitrary three-component melt, representing a system of continuous solid solutions, the distribution coefficient for the low-melting impurities will be lower than for the higher-melting impurities, or - in other words - a more efficient purification will be attained by the component with the lower melting point. The distribution coefficient of the one impurity changes in dependence on the concentration of the other one; it rises and drops corresponding to the character of the phase diagram of these impurities with the basic substance. To check the above explanations qualitatively, the authors studied experimentally the distribution coefficients of Cu and Mn, Cu and Si, as well as Fe and Si in aluminum at different concentrations (Table). The distribution coefficient of Fe in Al rises considerably in the presence of Si, i.e. the efficiency of aluminum

Card 2/3

Investigation of the Purification of a Substance From Two Impurities by Methods Basing on the Difference in Phase Composition During Crystallization

\$/076/60/034/008/010/014 B015/B054

refining (elimination of Fe) by the extraction method deteriorates in the presence of Si. As opposed thereto, the efficiency of aluminum refining for the elimination of Mn increases with the content of Cu since the distribution coefficient of Mn in Al drops in the presence of Cu. Thus, it is possible to utilize the reduction of the distribution coefficient of one impurity in the presence of another impurity to increase the purifying effect in a substance with difficultly separable impurities, i.e. impurities with a distribution coefficient near unity. There are 8 figures, 1 table, and 4 references: 3 Soviet and 1 US.

ASSOCIATION:

Moskovskiy aviatsionnyy tekhnologicheskiy institut

(Moscow Aviation Technological Institute)

SUBMITTED:

November 22, 1958

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AUTHORS:

Livanov, V.A., Professor, Bukhanova, A.A., Candidate of Technical Sciences and Kolachev, B.A., Candidate of Technical Sciences

TITLE:

The Interaction of Titanium With Moist Atmosphere and Air

PERIODICAL: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy. No.43. 1960. pp.91-99. Termicheskaya obrabotka i svoystva stali i legkikh splavov

TEXT: The kinetics of the interaction between titanium sponge of 2 types with moist atmosphere and the kinetics of extraction of volatile impurities in the process of vacuum roasting at various temperatures were studied. The chemical composition of the sponge (in %) was: Tr 2. (TG2): 0.3 Fe, 0.15 Si, 0.05 C, 0.07 Mg, 0.2 02, 0.03 H2, 0.05 N2, 0.07 Cl, remainder Ti; TI'3 (TG3): 0.4 Fe, 0.2 Si, 0.07 C, 0.12 Mg, 0.519 02, 0.026 H2, 0.397 N , 0.14 Cl, remainder Ti. A titanium electrode prepared from TG2 was also investigated. 12 to 13 g of the titanium was placed in a desiccator which had a beaker of water in the bottom. A moist atmosphere was obtained and the reaction was studied by Card 1/11

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following the change in weight of the titanium using an analytical balance. A vacuum apparatus was used to study the kinetics of extraction from the sponge of absorbed moisture and other volatile impurities. The change in weight with time (in days) of the electrode and TG2 sponge is shown in Fig.2. The weight of the electrode (curve 1) increases more than that of the sponge (curve 4) from which it was prepared. The initial sponge absorbs less water vapour than the sponge preliminarily dried at 300°C (curve 3). The electrode preliminarily washed in hot water (curve 2) is less hygroscopic than the initial electrode. shows the increase in weight of sponge TG3 in a moist atmosphere (curves 1 and 2) and air (curve 3). Curve 1 is for the sponge in its initial condition and curve 3 after saturation with hydrogen and a vacuum treatment at 900°C. TG3 is more hygroscopic than TG2 but the hydrogen and vacuum treatment decrease its tendency to absorb moisture. The result is explained by the fact that there is more MgCl2 on the surface of TGJ than on TG2. This is shown by the chemical analysis after boiling the sponge and the electrode (Table 2). When the electrode is pressed, more MgCl2 is Card 2/11

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uncovered on the surface. After removing the MgCl₂ from the surface, the ability of the sponge and electrode to absorb moisture decreases. Fig. 4 shows the change in weight (decrease) with time (in hours) of TG2 and TG3 with gradually increasing temperature as the process of vacuum extraction proceeds. Fig.5 shows the quantity of moisture extracted from TG2 against time (in hours) during vacuum extraction. The quantity extracted is 0.0044% after 10 hours at 20°C. Raising the temperature to 115°C increases this to 0.0062%. Further increases in temperature have little effect. Fig.6 shows the change in weight against time (in hours) during vacuum extraction of the electrode at various temperatures. Increasing the temperature from 20 to 100 °C gives an increase in the amount extracted. Further increases in temperature lead to a decrease, indicating that at these temperatures interaction between the water vapour and the electrode occurs. Fig.7 shows the change in weight against time (in minutes) of TG3 during vacuum extraction. Increasing the temperature from 20 to 400°C increases the amount extracted. Fig.8 shows the change in weight of TG2 sponge and the electrode (bottom curve) during alternate saturation with water vapour and vacuum extraction at 100°C. Card 3/11

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AUTHORS:

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TITLE:

The Influence of Hydrogen on the Mechanical Properties of Titanium and its Alloys With Various Straining

Conditions

PERIODICAL: Moscow. Aviatsionnyy tekhnologicheskiy institut.

Trudy. No.43. 1960. pp.100-105. Termicheskaya obrabotka

i svoystva stali i legkikh splavov

TEXT: The mechanical properties of titanium and its alloys were tested on smooth samples at room temperature with three rates of strain: 0.1 to 0.2 mm/min, 3 to 5 mm/min and 30 to 50 mm/min. Specimens tested were commercial titanium, α alloy BT5-1 (VT5-1) and two α + β alloys BT3-1 (VT3-1) and BT6 (VT6). Chemical analysis is given in Table 1. Samples were forged at 1000°C from billets made in a furnace with a consumable electrode. They were cooled in air and specimens were cut from them for testing. The specimens were treated in vacuo at 900°C for 6 hours and cooled in Card 1/8

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the furnace, in order to remove the hydregen. The mechanical properties are given in Table 2. The specimens were then saturated with hydrogen, the hydrogen content being determined from the change in weight and from the change in pressure of hydrogen in The hydrogen in the samples after vacuum treatment the system. was determined by the fusion method. Fig.1 to 4 show the influence of hydrogen on the mechanical properties of the alloys (Fig.1 - commercial Ti; Fig.2 - VT5-1; Fig.3 - VT3-1; Fig. 4 VT6). The properties increase markedly with increase in strain rate. The plastic properties decrease considerably with increase in hydrogen content, especially the reduction in area. Alloy VT6 is not subject to hydrogen embrittlement even up to 0.05% H2. This may be because there is no eutectoid decomposition of the β phase with decrease in temperature. There are 4 figures, 2 tables and 4 non-Soviet-bloc references. The references to English language publications read as follows: H.M.Burte, Metal Progress, 1955, No.5, p.115-120; E.J.Ripling, J.Metals, 1956, 8(II), No.8, p.907-913; R.I.Jaffee, D.A.Lenning, C.M.Graighead, J.Metals, 1956, 8(II), No.8, p.923-928.

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AUTHORS:

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TITLE:

Some Relationships in the Distribution of Components in Zone Melting, Arc Helting With a Consumable

Electrode and in Continuous Casting

PERIODICAL: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy. No.43. 1960. pp.106-116. Termicheskaya obrabotka i svoystva stali i legkikh splavov

Directed crystallization is a common feature of zone TEXT: melting, consumable-electrode melting and continuous casting, but the rates of movement of the liquid zone relative to the solid being formed is very different (0.05 to 5, 10 to 15 and 100 to 150 mm/min, respectively). The speed of directed crystallization has a considerable effect on longitudinal uniformity of composition (D.A.Petrov, B.A.Kolachev, ZhFKh, 1957, No.10). With a sufficiently high speed of movement of the liquid phase its composition and that of the crystallizing solid become equal and uniformity will be complete, since the liquid composition stays

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If the liquid bath is fed with metal of different constant. composition, bath composition (and that of the solid) changes, as has been observed in titanium-alloy metallurgy (A.D. Hakvillen, M.K.Makvillen, Titan, Metallurgizdat, 1958), when titanium sponge is mixed with alloying components and compacted to form an electrode. Compacting in separate portions does not give a uniform electrode and even after double remelting the titanium billet will still be heterogeneous because the electrode (produced in the preceding melting) is heterogeneous. For a more detailed investigation of this problem, the authors have made use of the common feature of zone and arc melting with a consumable electrode. They consider the longitudinal distribution of alloying components in a billet obtained by zone melting of an electrode with a nonuniform longitudinal distribution of the alloying component and a concentration at a point with coordinate x defined by the function f(x). They assume that the liquid bath is a cylinder of height h, the melting surface and crystallization front are flat, and that the rate of movement of the liquid zone is sufficient to prevent segregation on the macro-scale between the liquid and solid phases while giving uniformity of liquid Card 2/8

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composition at any instant. They deduce the following equation for the concentration C (in weight %) of the alloying component in the liquid phase

 $C = e^{-\frac{x}{\hbar}} \left[\int \frac{f(x+h)}{h} e^{\frac{x}{\hbar}} dx + K \right], \tag{1}$

where K is determined from the boundary conditions. They use this equation to evaluate the uniformity of distribution of components in a titanium billet obtained by the method of a composite consumable electrode, taking the extreme case of an electrode consisting of alternating portions of titanium (length a and alloying component (length b) in close contact. They conside two conditions. In one the melting front moves in pure titanium, i.e. f(x) = 0 and $C = Ae^{-x/h}$, where A is a constant found from the boundary conditions. In the other the front moves in the pure alloying component, when $C = 1 + Be^{-x/h}$, where B is a constant determined from the initial conditions. Using the method of complete induction, we obtain for the section

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